What is claimed is:

1. In a device for minimally invasive applications, the improvement comprising: a bistable structure for at least positioning and bending a distal end of the device, said structure including a quantity of shape memory alloy and a quantity of shape memory polymer.

2. The improvement of Claim 1, wherein said shape memory alloy has a coiled configuration, and wherein said shape memory polymer has a cylindrical configuration.

3. The improvement of Claim 2, wherein said shape memory alloy is embedded in said shape memory polymer.

4. The improvement of Claim 2, wherein said shape memory alloy is positioned within said shape memory polymer.

5. The improvement of Claim 2, wherein said coil configuration is compressed and retained in said shape memory polymer so as to define a hollow tube having said coil configuration embedded in a wall surface thereof.

6. The improvement of Claim 5, wherein said coil configuration has an axis coaxial with an axis of said hollow tube.

7. The improvement of Claim 5, wherein said coil configuration has an axis off-set from an axis of said hollow tube.

8. The improvement of Claim 2, including plurality of units each having a coiled configuration of shape memory alloy located within a cylindrical configuration of shape memory polymer.

9. The improvement of Claim 8, wherein each coil configuration has a different configuration.

10. The improvement of Claim 8, wherein said plurality of units are in a series configuration.

11. The improvement of Claim 1, wherein said quantity of shape memory polymer is in a tubular configuration, and wherein said quantity of shape memory alloy is wrapped around at least a portion of the tubular configuration.

12. The improvement of Claim 11, wherein said quantity of shape memory alloy has a ribbon configuration.

13. The improvement of Claim 1, wherein said quantity of shape memory alloy is composed of NiTiCu.

14. The improvement of Claim 1, wherein said quantity of shape memory alloy is composed of a plurality of shape memory alloy strips.

15. The improvement of Claim 1, wherein said quantity of shape memory polymer has a tubular configuration.

16. The improvement of Claim 15, wherein said quantity of shape memory alloy has a tubular configuration located within said tubular configuration of shape memory polymer.

17. The improvement of Claim 15, wherein said quantity of shape memory alloy is composed of a plurality of strips, and wherein said strips located in a wall surface of said tubular configuration of shape polymer.

18. The improvement of Claim 17, wherein said plurality of strips are in said wall surface in a direction selected from the group consisting longitudinal and radial with respect to an axis of said configuration.

19. The improvement of Claim 19, wherein said plurality of strips are in a spaced longitudinal relationship.

20. The improvement of Claim 18, wherein said plurality of strips are located spaced radial relationships.

21. The improvement of Claim 17, wherein said plurality of strips are located in openings in said tubular configuration.

22. The improvement of Claim 15, wherein said quantity of shape memory alloy is composed of a plurality of sections embedded in said tubular configuration.

23. The improvement of Claim 15, wherein said quantity of shape memory alloy is composed of net-like configuration attached to said tubular configuration.

24. The improvement of Claim 15, wherein said quantity of shape memory alloy is composed of a compressed spring located in a wall surface of tubular configuration.

25. The improvement of Claim 15, wherein said quantity of shape alloy is composed of a plurality of bent sections located in openings said tubular configuration.

26. The improvement of Claim 15, wherein said quantity of shape memory alloy is composed of a plurality of ribbons mounted in spaced relation around said tubular configuration.

27. The improvement of Claim 16, wherein said plurality of ribbons are of mesh configuration and mounted to a said tubular configuration support members.

28. The improvement of Claim 1, wherein said quantity of shape memory alloy has a mesh, tubular configuration wherein said quantity of shape memory polymer has a tubular configuration and wherein said mesh, tubular configuration is embedded in said tubular configuration.

29. The improvement of Claim 1, wherein said quantity of shape memory alloy comprises a plurality of strips, wherein said quantity of shape memory polymer is a tubular configuration and includes a plurality of longitudinally extending openings and a plurality of longitudinal slots, wherein said plurality of strips are located in said plurality of longitudinally extending slots.

30. The improvement of Claim 29, additionally including a plurality of light diffusers mounted in certain of said longitudinally extending openings.

31. The improvement of Claim 29, wherein said tubular configuration is constructed to mate up to a catheter having a plurality of longitudinally extending openings, whereby said slots and openings in said tubular configuration align with said openings in said catheter.

32. The improvement of Claim 2, comprising a plurality of units each having a coiled configuration of shape memory alloy and a cylindrical configuration of shape memory polymer, said units being connected in series and connected to a light source via a plurality of optical fibers in a catheter and light control mechanism.

33. The improvement of Claim 32, wherein each coiled configuration has a different configuration.

34. An articulated tip for a catheter comprising a composite of shape memory alloy and shape memory polymer.

35. A bistable device for reversible fine positioning of an object, comprising:

a member constructed of shape memory polymer at least one member constructed of shape memory alloy located in or adjacent to said member constructed of shape memory polymer, and means for selectively heating

said members to cause a change in configuration thereof, whereby the change in configuration results in reversible positioning thereof.